

TITLE OF THE INVENTION

STEAM COOKER HAVING A REDUCED SIZE

BRIEF SUMMARY OF THE INVENTION

5 [0001] The present invention concerns the technical field of steam cooking appliances.

[0002] Steam cookers have a cooking enclosure disposed on a base for producing steam. The steam production base can have or not have a self-contained means for heating water. The 10 cooking enclosure generally has one or several superposed cooking vessels closed by a cover. The cooking vessels have a bottom provided with perforations for the passage of steam, as well as a peripheral lateral wall. The bottom of the cooking vessels can be removable to obtain one cooking enclosure with 15 a larger size. If need be, a tray for recovery of juices can be disposed under a cooking vessel.

[0003] To reduce the size of these appliances, it is known to use superposed nested cooking vessels. During cooking, the size of the cooking vessels increases from the bottom toward 20 the top of the appliance. For storage, the order of the cooking vessels is reversed and the size of the cooking vessels decreases from the bottom toward the top. This arrangement permits the height of the appliance to be reduced when in the storage position. However, the height of the

appliance in the storage position remains greater than that of an appliance having only a single cooking vessel.

[0004] To obtain an even more compact storage, it has been proposed to produce a steam cooker with nested bowls in which 5 the steam production base can be stored in the smallest cooking bowl. This arrangement presents, however, the drawback of placing the lower part of the base, that is normally in contact with the working surface, in a cooking vessel. It is thus necessary to lift the base of the 10 appliance, which can still contain water. In addition, the electric cord coming from the base of the appliance interferes with storage. Also, the appliance disposed in the storage position rests on the lower part of a cooking bowl. These arrangements are particularly restricting in terms of storage 15 and cleaning, and risk leading to problems of cleanliness if the user is not sufficiently careful.

#### BRIEF SUMMARY OF THE INVENTION

[0005] The present invention provides a steam cooker having 20 a particularly compact storage configuration.

[0006] The present invention, in particular, provides a steam cooker having a particularly compact storage configuration, without requiring restricting manipulations.

[0007] The present invention also provides a steam cooker having a particularly compact storage configuration, without requiring particular cleaning restrictions.

[0008] More specifically, a steam cooker according to the 5 invention comprises a cooking element having a peripheral lateral wall intended to be placed on a pedestal having a steam production base surmounted, if need be, by a vessel for recovering juices and/or a cooking support, by the fact that the cooking element can be disposed in an inverted position on 10 the pedestal, the peripheral lateral wall at least partially enveloping the pedestal. Such a construction permits the attainment of a particularly compact storage configuration. 15 In addition, the user does not have need to handle the pedestal of the steam cooker in order to obtain this configuration. The cooking element can have a bottom in order to form a cooking vessel. The bottom of the cooking vessel can be removable. The cooking element can also be without a bottom. A cooking support is then disposed between the cooking element and the steam production base. The cooking 20 support can occupy a very reduced height.

[0009] Advantageously then, the cooking element has a bottom resting on a pedestal when the cooking element is disposed in the inverted position on said pedestal. This arrangement permits avoidance of contact of the lateral walls

of the cooking element with the working surface. This arrangement equally permits wedging of the lateral walls of the cooking element with the lateral walls of the pedestal of the steam cooker to be avoided. The cooking element forms a  
5 cooking vessel.

[0010] The steam cooker can advantageously have several superposed cooking elements each having a peripheral lateral wall, these cooking elements being nested to obtain a compact storage. The smallest cooking element is disposed on the  
10 pedestal and the other elements are superposed by increasing size. The cooking element placed in the upper position is the largest cooking element. Thus, the cooking elements can be inverted on one another for storage.

[0011] Advantageously, the steam cooker comprises a lid  
15 provided to close the cooking element that is furthest from the pedestal, the lid having a skirt able to envelop the lower part of the peripheral lateral wall of said cooking element disposed in the inverted position. This arrangement permits protection of the bottom of the upper cooking element inverted  
20 on another vessel, or the bottom of the single inverted cooking element on the pedestal of the steam cooker, while retaining a good compactness. In addition, this arrangement permits avoiding the entry of dust into the cooking element or cooking elements as well as into the pedestal.

[0012] Advantageously then, for a better stability of the lid, the skirt comes to bear on the lower part of the peripheral lateral wall of said cooking element disposed in the inverted position.

5 [0013] Also advantageously, the vessel for recovering juices has lateral recesses intended to facilitate gripping.

[0014] Also advantageously, gripping organs are disposed on the upper part of the cooking element or elements. This arrangement permits retention of a compact stacking while  
10 facilitating gripping of the cooking element or elements.

[0015] Also advantageously, the pedestal has a retractable filling device. This arrangement permits the compactness of storage to be reconciled with ease of filling.

[0016] Advantageously then, the retractable filling device  
15 is arranged under the vessel for recovering juices. This arrangement permits a better compactness than an arrangement in the heating base. In effect, the arrangement under the vessel for recovering juices occupies only a part of the surface of the vessel for recovering juices while an  
20 arrangement in the heating base occupies the totality of the surface of the heating base over a given height, because of sealing problems impeding a filling up to the level of the retractable filling device. By this fact, for the same reservoir water capacity, the arrangement of the retractable

filling device under the vessel for recovering juices permits a lower height.

[0017] Advantageously then, the retractable filling device is arranged under a raised part of the bottom of the vessel 5 for recovering juices. This arrangement permits optimization of the space occupied by the vessel for recovering juices without affecting its capacity.

[0018] According to an advantageous form of construction, the retractable filling device has a drawer arranged under the 10 bottom of the vessel for recovering juices. According to another advantageous form of construction, the retractable filling device can have a movable lateral wall forming a filling chute. The lateral wall is for example movable about a horizontal axis of rotation.

15 [0019] Also advantageously, the drawer is pivotably mounted under the bottom of the vessel for recovering juices along an axis of rotation. Other forms of construction such as a slidably mounted drawer can equally be envisioned.

[0020] Advantageously, an outer annular lateral wall of the 20 pedestal surrounds a rice bowl disposed in inverted position on the pedestal. This arrangement permits conserving a good compactness in the storage position despite the storage of a supplementary accessory.

[0021] Advantageously then, the rice bowl has a handle housed above the raised part of the bottom of the vessel for recovering juices. This arrangement permits reconciling compactness with ease of gripping.

5 [0022] Advantageously then, in order to facilitate the installation of the filling device, the handle extends from a lateral face of the rice bowl, said lateral face being curved inwardly toward the interior of the rice bowl.

10 [0023] According to one form of construction, the cooking element disposed in an inverted position on the pedestal rests on the rice bowl.

[0024] Advantageously also, the base has gripping organs.

15 [0025] The invention will be better understood from a study of three examples of construction and one variant, taken in a way that is not in any way limiting, and illustrated in the attached figures.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0026] Figure 1 is a front view in cross section of a first 20 example of construction of a steam cooker according to the invention, of which the pedestal has a heating base and a vessel for recovering juices, this steam cooker being represented in its position of use,

[0027] Figure 2 is a front view in cross section of the first example of construction of the steam cooker according to the invention represented in its storage position.

[0028] Figure 3 is a side view in cross section of the 5 first example of construction of the steam cooker according to the invention, represented in its storage position without the upper cooking vessels or the lid.

[0029] Figure 4 is a front view in cross section of a variant of the first example of construction of a steam cooker 10 according to the invention, in which the pedestal has only a heating base.

[0030] Figure 5 is a front view in cross section of a second example of construction of a steam cooker according to the invention, of which the pedestal has a heating base and a 15 cooking support, this steam cooker being represented in its position of use,

[0031] Figure 6 is a front view in cross section of the second example of construction of a steam cooker according to the invention, represented in its storage position,

20 [0032] Figure 7 is a front view in cross section of a third example of construction of a steam cooker according to the invention, this steam cooker being represented in its storage position,

[0033] Figure 8 is a top view of a rice bowl disposed in the vessel for recovering juices of the third example of construction of a steam cooker according to the invention, represented in the storage position.

5

#### DETAILED DESCRIPTION OF THE INVENTION

[0034] Figure 1 shows a steam cooker comprising a steam production base 1, a vessel 2 for recovering juices, cooking elements 3, 4, 5 and a lid 6, arranged in a superposed manner.

[0035] Base 1 comprises a water reservoir 10 communicating with a boiling chamber 11 in which is arranged a heating element 12. A crown 13 delimits reservoir 10 and chamber 11. Base 1 presents an exterior lateral wall 14. Water reservoir 10 is mounted on a baseplate 19. The electric parts of the appliance are housed in baseplate 19. Gripping organs 70 are disposed on lateral wall 14 of base 1. Gripping organs 70 are formed by two diametrically opposed handles extending from baseplate 19. Gripping organs 70 protrude with respect to lateral wall 14.

[0036] Vessel 2 for recovering juices disposed on base 1 has a bottom 20 provided to collect cooking juices or condensates flowing from cooking elements 3, 4, 5. A chimney 21 extending from bottom 20 presents lateral walls 22 and a roof 23. Lateral walls 22 present in their upper part

perforations 24 provided for the passage of steam coming from boiling chamber 11. An exterior annular lateral wall 25 surrounds bottom 20. The height of chimney 21 is less than the height of outer annular lateral wall 25.

5 [0037] Vessel 2 for recovering juices has a filling device 7 for reservoir 10. Filling device 7 is retractable. Filling device 7 comprises a drawer 26 mounted under bottom 20 of vessel 2 for recovering juices. Drawer 26 is mounted pivotably around an axis of rotation 27. Axis 27 extends from 10 the lower face of bottom 20. Drawer 26 is disposed under a raised part 28 of bottom 20. More particularly, axis 27 extends from raised part 28. Drawer 26 presents a bottom wall 29 inclined toward the interior of reservoir 10, in a manner to aid the flow of water into reservoir 10. Outer lateral 15 wall 14 of base 1 presents an upper indentation 15 provided to house drawer 26. A skirt 18 is arranged under bottom 20 of vessel 2 for recovering juices. Filling device 7 is disposed outside of skirt 18.

[0038] Vessel 2 for recovering juices presents an outer 20 annular lateral rib 16 resting on steam production base 1. Outer annular lateral wall 25 presents above rib 16 lateral recesses 17 intended to facilitate gripping of vessel 2 for recovering juices.

[0039] Each of cooking elements 3,4,5 presents a peripheral lateral wall 35,45,55. The smallest cooking element 3 presents a bottom 30 fixed with respect to peripheral lateral wall 35. Middle cooking element 4 presents a bottom 40 removable with respect to peripheral lateral wall 45. The largest cooking element 5 presents a bottom 50 removable with respect to peripheral lateral wall 55. Cooking elements 3,4,5 can form independent cooking vessels when removable bottoms 40,50 are in place. Cooking elements 3,4,5 can equally form a larger cooking vessel when at least one of removable bottoms 40,50 is withdrawn.

[0040] Removable bottoms 40,50 have hanging feet 41,51 described in detail in the document WO 00/30511. Gripping organs 32,42,52 are disposed on the upper part of cooking elements 3,4,5. Each of the gripping organs 32,42,52 is for example formed by an other flange having in its upper part a shaped part 33,43,53 provided to receive the lower part of a skirt 60 of lid 6. Thus, lid 6 can be adapted to each of cooking elements 3,4,5.

[0041] Cooking elements 3,4,5 are nested. During cooking, such as represented in figure 1, the largest cooking element 5 is placed under the lid, the smallest cooking element 3 is placed on vessel 2 for recovering juices, and the middle cooking element 4 is placed between the other elements. For

storage, such as represented in figure 2, the smallest cooking element 3 is placed in middle vessel 4 which is placed in the largest cooking element 5.

[0042] More particularly according to the invention, the 5 smallest cooking element can be inverted on vessel 2 for recovering juices placed on base 1. Cooking elements 4,5 are equally stacked in an inverted fashion. Lid 6 is placed on the largest cooking element 5. Thus in the storage position of the appliance, pedestal 8 formed by base 1 and vessel 2 for 10 recovering juices remains in place on the working surface.

The user does not have need to handle pedestal 8 of the appliance. Only cooking elements 3,4,5 are inverted on pedestal 8, for example after having been washed.

[0043] Lid 6 can retain its position used during cooking. 15 Skirt 60 of lid 6 is provided to envelop bottom 50 of the largest cooking element 5 when this latter is inverted. As shown in figure 2, skirt 60 comes to bear on the lower part of peripheral lateral wall 55 of inverted cooking element 5. Peripheral lateral wall 45 of middle cooking element 4 is 20 disposed between peripheral lateral walls 35;55 of cooking elements 3;5 when these latters are inverted. Peripheral lateral wall 35 of the smallest cooking element 3 is provided to envelop vessel 2 for recovering juices placed on base 1 when cooking element 3 is inverted. Gripping organs

70,32,42,52 are superposed, which permits the user to move the steam cooker disposed in the storage position by grasping gripping elements 70 of the base as well as gripping organs 32,42 or 52 of the cooking elements, regardless of the number 5 of cooking elements 3,4,5 disposed on pedestal 8 in the inverted position.

[0044] Thus, peripheral lateral wall 35 of cooking element 3 envelops at least partially pedestal 8 of the steam cooker.

[0045] Base 1 has an electric cord 80 and a timer 71 disposed below cooking element 3 disposed on pedestal 8 in the inverted position, such as is visible in figure 3. Electric cord 80 extends from baseplate 19. Electric cord 80 can remain connected even when the steam cooker is in the storage position. Timer 71 is mounted on the lateral wall of 15 baseplate 19.

[0046] Figure 4 shows a steam cooker having a steam production base 1', cooking elements 3',4',5' and a lid 6' arranged in a superposed manner. This variant of construction differs from the preceding example of construction in that 20 pedestal 8' of the steam cooker has a steam production base 1' but not a vessel for recovering juices. Lower cooking element 3' rests on base 1'.

[0047] Base 1' has a water reservoir 10' communicating with a boiling chamber 11' in which is arranged a heating element

12'. A crown 13' delimits reservoir 10' and chamber 11'. Base 1 presents an outer lateral wall 14'. Lower cooking element 3' has a peripheral lateral wall 35' and a bottom 30'. Cooking element 3' rests on the top of exterior lateral wall 14'.

5 Crown 13' presents lateral walls 22' and a roof 23'. Lateral walls 22' present in their upper part perforations 24' provided for the passage of steam coming from boiling chamber 11'. Middle cooking element 4' has a peripheral lateral wall 45' and a removable bottom 40'. Upper cooking element 5' has a 10 peripheral lateral wall 55' and a removable bottom 50'.

[0048] Cooking elements 3', 4', 5' can be inverted to occupy a storage position on pedestal 8. Lower cooking element 3' is then inverted on base 1'. Peripheral lateral wall 35' of cooking element 3' then envelops at least partially pedestal 8' 15 of the steam cooker.

[0049] Another example of construction of a steam cooker according to the invention is shown in figures 5 and 6.

[0050] Figure 5 shows a steam cooker comprising a steam production base 1'', a vessel 2'' for recovering juices, a 20 cooking support 9, a cooking element 3'', and a lid 6'', arranged in a superposed manner.

[0051] Steam production base 1", vessel 2" for recovering juices and lid 6" are identical to base 1, to vessel 2 for recovering juices and to cover 6 of the first example of construction.

5 [0052] Vessel 2" for recovering juices has a peripheral lateral wall 15" provided with recesses 17" intended to facilitate gripping, as well as a retractable filling device 7".

10 [0053] Cooking element 3" has a peripheral lateral wall 35" but does not have a bottom intended to receive foods to be cooked.

15 [0054] A cooking support 9 is arranged between vessel 2" for recovering juices and cooking element 3". The cooking support has a perforated bottom 90. Bottom 90 is surrounded by a peripheral lateral wall 95 furnished with recesses 97 intended to facilitate gripping.

[0055] Pedestal 8" is formed by base 1", vessel 2" for recovering juices and cooking support 9.

20 [0056] Figure 6 represents the steam cooker in the storage position. Cooking element 3" is inverted on pedestal 8". Peripheral lateral wall 35" of cooking element 3" envelops at least partially pedestal 8" of the steam cooker.

[0057] A third example of construction of a steam cooker according to the invention is shown in figures 7 and 8.

[0058] Figure 7 shows a steam cooker comprising a steam production base 1", a vessel 2" for recovering juices, cooking 5 elements 3", 4", 5" and a lid 6", arranged in a superposed manner.

[0059] Steam production base 1", vessel 2" for recovering juices and lid 6" present a structure similar to that of base 1, of vessel 2 for recovering juices and of lid 3 of the first 10 example of construction. Cooking element 3", 4", and 5" each present a removable bottom 30", 40", 50" furnished with hanging feet 31", 41", 51", as well as a peripheral lateral wall 35", 45", 55".

[0060] Vessel 2" for recovering juices has a bottom 20" 15 surrounded by an outer annular lateral wall 25" furnished with recesses 17" intended to facilitate gripping, as well as a retractable filling device 7". Filling device 7" comprises a drawer 26" pivotably mounted under a raised part 28" of bottom 20" of vessel 2" for recovering juices.

[0061] A rice bowl 100 can be housed in inverted position 20 in vessel 2" for recovering juices around chimney 21", such as shown in figures 7 and 8. Rice bowl 100 presents a bottom 101 furnished with four feet 109. Bottom 101 is surmounted by a

lateral wall 102 presenting handles 103, 104 disposed in an opposed manner. Handles 103, 104 extend from faces 105,106 curved inwardly toward the interior. Handle 103 and handle 104 are disposed at a distance from upper edge 109 of lateral 5 wall 102. This arrangement permits housing of handle 103 or handle 104 above raised part 28" of bottom 20" of vessel 2" for recovering juices. Lateral wall 102 has two other faces 107,108 convex toward the outside. This arrangement permits the capacity of rice bowl 100 to be increased.

10 [0062] Pedestal 8" is formed by base 1" and receptacle 2" for recovering juices. Base 1" has gripping organs 70".

[0063] In the storage position, cooking element 3" is disposed in the inverted position on pedestal 8". Cooking element 3"" rests on rice bowl 100 inverted in pedestal 8".  
15 Bottom 30" of cooking element 3" rests on rice bowl 100 inverted in pedestal 8". Bottom 30" of cooking element 3"" rests on bottom 101 of rice bowl 100, and more particularly on feet 109 of bottom 101. Rice bowl 100 is inverted in vessel 2" for recovering juices. Outer annular lateral wall 25" of 20 pedestal 8" encloses rice bowl 100 disposed in the inverted position on pedestal 8". Peripheral lateral wall 35" of cooking element 3" partially envelops pedestal 8".

[0064] By way of a variant, in one or the other of the examples of construction, chimney 23 can be as high as the top of outer annular lateral wall 25 of vessel 2 for recovering juices.

5 [0065] By way of a variant, the steam cooker can have several middle cooking elements, or none, or even a single cooking element, this cooking element or these cooking elements being provided to be inverted on the pedestal of the steam cooker. Each cooking element can have a fixed bottom or  
10 a removable bottom for receiving food to be cooked, or even no bottom.

[0066] By way of a variant, the removable bottom or bottoms of the cooking element or cooking elements can be stored under the lid above the inverted peripheral lateral wall or walls on  
15 the pedestal. If the steam cooker has a rice bowl, said removable bottom or bottoms can then, as need be, rest on the rice bowl inverted on the pedestal.

[0067] By way of a variant, the steam cooker can be without a retractable filling device, or even have a retractable  
20 filling device arranged in the steam production base.

[0068] By way of a variant, drawer 26; 26"; 26"" of retractable filling device 7; 7"; 7"" is not necessarily pivoting, but can be for example sliding.

[0069] By way of a variant, axis 27 does not necessarily extend from bottom 20 of vessel 2 for recovering juices, but can be formed by a piece added under bottom 20 of vessel 2 for recovering juices.

5 [0070] By way of a variant, the pedestal of a steam cooker can have a steam production base and a cooking support arranged on the base, without having a vessel for recovering juices.

10 [0071] By way of a variant, the base can have or not have gripping organs.

15 [0072] By way of a variant, rice bowl 100 could be inverted in base 1' in the absence of a vessel for recovering juices, or in cooking support 9. Base 1' has an outer annular lateral wall 14'. Cooking support 9 has an outer annular lateral wall 95.

[0073] By way of a variant, cooking element 3"" disposed in the inverted position on pedestal 8"" does not necessarily rest on rice bowl 100.

20 [0074] The present invention is not in any way limited to the example of construction described and its variants, but encompasses numerous modifications in the framework of the claims.

[0075] This application relates to subject matter disclosed in French Application Number 0215591, filed December 10, 2002,

and European Application Number 03 356025.1, filed February 14, 2003, the disclosures of which are incorporated herein by reference.

[0076] The foregoing description of the specific 5 embodiments will so fully reveal the general nature of the invention that others can, by applying current knowledge, readily modify and/or adapt for various applications such specific embodiments without undue experimentation and without departing from the generic concept, and, therefore, such 10 adaptations and modifications should and are intended to be comprehended within the meaning and range of equivalents of the disclosed embodiments. It is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation. The means, materials, 15 and steps for carrying out various disclosed functions may take a variety of alternative forms without departing from the invention.

[0077] Thus the expressions "means to..." and "means for...", or any method step language, as may be found in the 20 specification above and/or in the claims below, followed by a functional statement, are intended to define and cover whatever structural, physical, chemical or electrical element or structure, or whatever method step, which may now or in the future exist which carries out the recited function, whether

or not precisely equivalent to the embodiment or embodiments disclosed in the specification above, i.e., other means or steps for carrying out the same functions can be used; and it is intended that such expressions be given their broadest

5 interpretation.